

# CHAPTER 22

## Televised NFL Games, the Family, and Domestic Violence

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There can be no mistaking the prominent role that television plays in contemporary American family life. Three of four American households have at least two television sets. The average household has the television on about eight hours per day; the average adult watches more than four hours per day. Television viewing dominates leisure activities and, because of its near ubiquity in contemporary households, television is part, either in the foreground or background, of most in-home activity (Television Bureau of Advertising, 2004).

Television viewing, either alone or with others, generally is a pleasurable experience. Spouses report that they deem television as an opportunity to spend time with one another (Gantz, 1985), and shared viewing is rated as more pleasant than solo viewing (Kubey, 1990). Overall, spouses characterize co-viewing as a valued activity that has few disruptive effects (Gantz, 1985). Yet, within the context of household and family life, television can be a source of conflict. Family members might disagree about when the set should be on and off, the amount of time spent watching television, the programs preferred and viewed, use of the remote control, and the activities that get displaced by television viewing. Accordingly, discrepancies in TV program preferences between husbands and wives have been linked with lower marital satisfaction scores (Gantz, 1985; Gantz, Wenner, Carrico, & Knorr, 1995).

Program preference discrepancies between husbands and wives are greatest for televised sports (Gantz, 1985). Consequently, men outnumber women among televised sports audience (e.g., Frank & Greenberg, 1980; National Association of Broadcasters, 1987). This differential is important because televised sports are now available 24 hours per day, with professional and collegiate sports routinely televised during leisure time (i.e., evenings and weekends) when both spouses are more likely to be home.

In addition to simply outnumbering women in the audience, men appear to experience televised sports differently (Gantz & Wenner, 1991). Men are more likely to experience and react to televised sports as fans. “[Men] are more likely to look forward to TV sports, to be motivated because of interest in the game itself, and to be involved and emotionally responsive while watching. Women are more likely to watch TV sports for social purposes, often watching in order to join friends and family who watch because they are interested in the game itself” (Gantz, et al., 1995, p. 308). For fans, television viewing is an active experience. Fans exuberantly engage the viewing experience, orchestrating previewing, concomitant, and postviewing behaviors around the sports viewing (Gantz & Wenner, 1995). Although men are more likely to be fans, when male and female fans are

compared, more similarities than differences are seen. Rather than dividing along sharp gender lines, female and male fans of sports share the same joys, passions, and frustrations (Gantz & Wenner, 1995). Nonfans approach sports differently, and female nonfans are especially different in their approach (Gantz & Wenner, 1995). When both spouses are fans, televised sports offer meaningful co-viewing. However, greater fanship among males guarantees an inequality and sets the stage for disagreement and potential conflict.

Conflicts about televised sports appear to be infrequent and generally low key. Gantz et al. (1995) found that only 1 in 20 married respondents said they would watch their favorite sport even if it meant having an argument with their spouse. More typically, accommodations were made when either the spouse had scheduled some other activity concurrent with televised sports or when the spouse wanted to watch something else. However, some participants did report resentment over sports viewing. In accordance with the fanship trends, women were more likely to report being resentful—a trend that the men seemed to notice, as men were more likely to report that their spouses resented their viewing. Overall, however, the notion of televised sports as an irritant appears small. When asked to label the role of televised sports in their marriage, only one in nine described it as negative.

For years, the popular press has written about football widows and families abandoned for televised sports. These depictions appear somewhat overblown—certainly greater than the perhaps conservative estimates offered by Gantz et al. (1995). Nonetheless, because men are more likely to be sports fans and because sports fans and nonfans experience pregame activities, viewing, and postgame activities so differently, the potential for conflict exists. Conflict here could range from slightly bruised egos to domestic violence.

The relationship between televised football games and domestic violence has concerned the general public, health practitioners, and the scholarly community for some time. The potential linkage of televised football and domestic violence gained a national stage in 1993 when broadcast network NBC agreed to air an anti-domestic violence public service announcement during its Super Bowl coverage (Hohler, 1993). The issue has been simmering ever since. This chapter reports an original study designed to examine the relationship between televised football games and domestic violence.

## **VIOLENCE IN THE HOUSEHOLD**

Domestic violence is a pattern of violent and coercive behavior committed by those in intimate relationships. These behaviors include physical, sexual, and psychological assaults on one's partner as well as attacks on household pets and property. Far more often than not, men are the perpetrators of domestic violence, females the victims. Between 1 million and 4 million American women are victimized by domestic violence each year (American Psychology Association, 1996; Bureau of Justice Statistics, 1995). Incidents vary on the basis of a host of factors including geography, population density, season, climate and weather, day of the week, and time within any day as well as individual factors such as alcohol and drug consumption, communication skills, and stress. Southern and western states have the highest rates of domestic partner homicides.

The rate of such homicides is also greater in metropolitan areas of over 250,000 people (Center for Disease Control and Prevention, 2001). Domestic violence most frequently occurs between 6 pm and midnight and often is committed by those under the influence of alcohol or drugs (Bureau of Justice Statistics, 1998; Hutchison, 2003). Nonetheless, domestic violence cuts across social, economic, and geographic divides, affecting people all across the country (and in other nations as well).

Although alcohol has been linked to assault, simple drinking frequency is not a significant predictor of assault when personality trait variables are included in multivariate analysis (Zhang, Wiczorek, & Welte, 1997). Instead, level of drinking interacts with deviant thoughts, aggression and hostility, and impulsivity to predict assault (Zhang, et al., 1997). When batterers and nonbatterers are compared on intelligence, there is no overall difference in intelligence; however, batterers exhibit reduced verbal abilities and show weaker performance on measures of executive function (Cohen, et al., 2003). This reduced verbal ability and impaired executive function could reasonably be expected to suffer further under the influence of alcohol. Further, batterers exhibited greater problems with response inhibition and impulsivity (Cohen, et al., 2003).

### THE SPORTS EXPERIENCE

Longstanding interest in the relationship between televised football and domestic violence is related to the popularity and violent nature of the sport. NFL games draw a large and predominantly male audience whose viewing motivations include following their favorite players and teams, enjoying the excitement and tension associated with the action, relaxing and unwinding, and, perhaps conversely, getting psyched up (Gantz & Wenner, 1995; Wenner & Gantz, 1998). The games feature (generally) controlled aggression, with video replays of most plays, including bone-jarring tackles (sports network ESPN replays the hardest noninjury tackles of the week in a feature titled “Jacked Up”). Suspense and violence associated with the games are linked with viewer satisfaction (Bryant & Raney, 2000); among those prone to aggression, sports violence is associated with maximum viewing enjoyment (Bryant, 1989). Televised football abounds with violent clashes, and prolonged exposure to nonsports-based media violence has been shown to initiate hostile behavior in unprovoked individuals—and this effect was greater for men than for women (Zillmann & Weaver, 1999).

There is experimental evidence to suggest that viewers respond to the closeness of a game. Can, Tuggle, Mitrook, Coussement, and Zillmann (1997) had participants watch various games of the NCAA basketball tournament live. For male participants, enjoyment increased as games became closer. Females, however, showed a different pattern. Their enjoyment increased to a moderate level of closeness (i.e., 5–9-point spread between teams), but their enjoyment fell off dramatically as games became extremely close. Thus, a situation arises where males and females have disparate responses and leave the game with different moods, levels of satisfaction, and expectations of postgame interaction. An experiment involving psychophysiological responses to sports photographs differentiated individuals who had high fan identification compared to those who had either moderate or low fan identification (Hillman, et al., 2000). Team-relevant sport pictures led to greater reported arousal and pleasantness compared to team-irrelevant pictures only for

highly identified fans. Highly identified fans also showed greater heart-rate deceleration (indicative of greater controlled attention) for team-relevant sports pictures, which did not occur for the other two groups. For these highly identified fans then, team-relevant sports may be an entirely different emotional and physiological experience than for moderate and nonfans.

This increased intensity for fans may be most apparent during the Super Bowl. In the United States, the Super Bowl regularly ranks as the most widely watched single program of the year, drawing more than 100 million Americans (National Football League, 2003). The 2001 Super Bowl matching the New York Giants and the Baltimore Ravens, for example, delivered a 40.4 rating, by far the most viewed program of the 2000 to 2001 television season (Nielsen, 2002). For many, the game highlights a day of celebration and partying. Perhaps because of its unique visibility and the disruption it causes in the daily lives of so many, Super Bowl Sunday has been scrutinized by fans, writers, scholars, and those concerned about the adverse consequences of televised sports. Indeed, on January 18, 1993, Fairness and Accuracy in Reporting, a media watchdog group, released a statement that Super Bowl Sunday was one of the worst days of the year for domestic violence against women. A short time later, the then-head of the California Women's Law Center noted that 40 percent more women would be battered on Super Bowl Sunday than on a normal Sunday. Although these allegations were hotly contested in the press (Cadwallader, 1993; Cobb, 1993; Gorov, 1993; Hohler, 1993; Ringle, 1993; Sommers, 1994; Tuohy, 1993), no definitive picture emerged. As noted several years earlier, the public had "black and blue answers" but lacked "hard data" to substantiate them (Ruffini, 1991).

Some hard data from the academic community speak to the issue at hand. Using a lab experiment, Goldstein & Arms (1971) found that observing football games increased spectators' hostility, regardless of whether the spectators' preferred team won or lost. However, generalization from within the laboratory to outside contains substantial risk (Freedman, 1984; Phillips, 1982, 1983). A handful of studies concerning football game violence employed real-life data (Drake & Pandey, 1996; Hettich, 2001; Miller, Heath, Molcan, & Dugoni, 1990; Phillips, 1983; Sachs & Chu, 2000; White, 1989; White, Katz, & Scarborough, 1992). One focused directly on football games and domestic violence.

Sachs and Chu (2000) performed an ecological time trend analysis of the Los Angeles Sheriff Department's data from 1993 to 1995 but failed to find a statistically significant association between domestic violence police dispatches and professional football games. Dispatches increased marginally during the 1993 to 1994 football season and somewhat more dramatically during playoff and Super Bowl weeks. During the following football season, though, dispatches did not increase above baseline levels. Instead, dispatches decreased during the season, including playoff and Super Bowl weeks, although the observed declines were not statistically significant. Super Bowl Sunday was never the biggest day for domestic violence dispatches.

Other studies looked at football's link with homicides (Miller et al., 1990; Phillips, 1983; White, 1989), emergency room admissions (White, et al., 1992), child abuse (Drake & Pandey, 1996), and negative marital interactions (Hettich, 2001). White (1989) examined the effect of NFL football playoff games on the relative incidence of homicides in standard metropolitan statistical areas (SMSAs) with and without participating teams. SMSAs in which home teams lost experienced significantly more homicides over the six days following a game. White argued the result supported the gambling hypothesis

(losing money leads to violence) and frustration-aggression theory (frustration leads to violence). However, White et al. (1992) found that the frequency of hospital emergency room admissions of women who were traumatically hurt increased (albeit not significantly) when the football team in their city won a game. Here, the authors concluded that winning could stimulate assaults: "Having a favorite team win may act as a trigger for assault in some males [since] the successful use of violent acts may give the identifying fan a sense of license to dominate his surroundings" (p. 157).

Neither Phillips (1983) nor Hettich (2001) found a significant association between football games and homicides or negative marital interactions. If anything, Phillips felt the Super Bowl was linked with a decline rather than rise in homicide rates. Drake and Pandey (1996) found no association between any sport—including football—and male-perpetrated child abuse cases.

Phillips (1983) also observed an interesting and curious phenomenon he called the "third day peak" effect (p. 562). With the effect, Phillips posits there is a three-day lag between the exposure to televised violence and the strongest real-life violent response. That is, the most significant effect of media information on violent behavior or fatalities appeared on the third day after the media message was on air. California and Detroit auto fatalities peaked on the third day after publicized suicide stories (Bollen & Phillips, 1982; Phillips, 1979), as did U.S. noncommercial airplane crashes after publicized suicide stories (Phillips, 1978, 1980) and homicides after heavyweight championship prizefights (Phillips, 1983). Other scholars (Baron & Reiss, 1985a, 1985b; Miller, et al., 1990) have scrutinized the effect. Baron and Reiss (1985a) suggested the effect may result from the occurrence of holidays or weekends near prizefights or fluctuations in unemployment rates. Adding day of week and employment data as control variables, Miller et al. reanalyzed Phillips's prizefight data and found the effect spread over the third and fourth days but only on Saturdays following those fights. However, in White's study of SMSAs with losing and winning teams, the largest increase of homicides in losing SMSAs was observed on the sixth day (1989). To date, then, occurrence and significance of the third-day peak effect remains unresolved.

Because domestic violence occurs so frequently and has been linked, at least in the popular press, with coverage of professional football games, and past research shows that televised sports have the potential to create conflict within the family, this study examines the relationship between professional football and incidence rates of domestic violence. Although the study is guided by a simple research question—Is there a relationship between professional football and domestic violence?—it would be naive to suspect that all professional football games would affect domestic violence uniformly. Instead, we expect the relationship, if found, to be complex and a product of a host of factors likely to come into play. These include structural variables such as month of the year, day of the week, and time of day when the games are on; competitive variables such as team win-loss records and place in the standings; and dispositional variables such as expected outcomes (which can be measured by point spreads for those who gamble) and actual outcomes (i.e., closeness of the final score and the degree to which the score was consistent with expectations).

## METHOD

In order to collect data for this analysis, the authors contacted the police department in every city with an NFL franchise throughout the years 1996 to 2002. Because the Titans/Oilers franchise moved twice during the study period, no data were sought from Houston, Memphis, or Nashville. An attempt was made to determine which police official had the authority to grant the records request for domestic violence dispatches by days. When the proper official was identified, a letter was sent requesting a daily total of domestic violence emergency dispatches by day from January 1, 1996, until the most recent data available. When data were not available for the entire study period, police officials were asked to send as much data as possible. Approximately two weeks after the letters were sent, a follow-up phone call was made to the official. Six weeks after the phone call, a reminder phone call was made. Finally, approximately eight weeks after the reminder call, a second written request was made referencing the respective state freedom of information laws. Data were received from 15 NFL cities: Baltimore, Chicago, Cincinnati, Cleveland, Dallas, Denver, Green Bay, Kansas City, Miami, Oakland, Phoenix, Pittsburgh, San Diego, Seattle, and Tampa Bay. Two additional cities (Atlanta, New Orleans) requested reimbursement for data photocopying and preparation that was cost preventative for this study. One city (Indianapolis) responded that they did not keep such records. The data reported here are based on 26,192 days of domestic violence data from the 15 cities. The number of domestic violence incidents for each city was converted into standardized z-scores because of the great variation among city populations (i.e., the reporting cities range from three top-ten markets to Green Bay, WI).

### Predictor Variables

We employed three models to examine the relationship between professional football and domestic violence. These models allowed us to control variance associated with known seasonal, weekly, holiday, and annual trends. After this variance was removed, we were able to examine the statistical relationship between football games and domestic violence. The first model looked at the effect of proximal football games on any given day. Thus, we looked at whether any given day's domestic violence dispatches were influenced by having an NFL football game (in that market) the same day, the day before, two days before, and so forth. This would allow us to see any delayed effect due to a lag in reporting or perhaps an argument that begins during football viewing and festers for some time period before ultimately resulting in domestic violence. In this model, the day is the unit of analysis. The second model allowed us to more closely look at game-related variables. Here each local game is a unit of analysis. This allowed us to examine whether variables related to a game affect domestic violence. This model included variables meant to capture the importance and intensity of the game. In the second model, we looked at whether the game was played at home, whether the game was against a division rival, whether it was a playoff game, whether the game was a win, how many weeks remained in the season, how close the team was to the top of its division (important in playoff considerations), a term that multiplied the number of weeks remaining and how close the team was to the top of the division (thought to capture must-win games), how close the game was predicted to be, and how close the game actually was. It only makes sense that some games are more important than others. This model is designed to capture that varying importance. The third model more closely resembles the first and is used to

specifically examine the Super Bowl. This model considers all days and examines whether the Super Bowl falling on a given day causes that day's (or subsequent days') domestic violence incidents.

### ***Weekday***

Domestic violence occurrences are heavily influenced by weekly, seasonal, and holiday variations. Because the vast majority of NFL games are played on Sundays, it was important to control for this fluctuation. Accordingly, a dummy code (i.e., 0 or 1) was created for each day of the week except Wednesday because no games occurred on Wednesdays in this sample and midweek days had the fewest incidents. Thus, Wednesday was the baseline weekday to which other days were compared. By using a separate variable for each weekday, this allowed us to remove both linear and nonlinear weekly variations.

### ***Month***

Domestic violence peaks during the summer months and decreases steadily throughout the NFL season. To control for this negative, downward trend, dummy codes were also created for each month except March because no games occurred in March and domestic violence dispatches are less frequent during winter months.

### ***Year***

A dummy variable was also included to capture fluctuation among years in the data sample because not all cities could provide data for all years. If one year had a particularly high rate of domestic violence, this might be overrepresented in the sample if not controlled. Because some games did occur in all years in this sample, 2002 was arbitrarily selected as the reference year for the first two models. For the Super Bowl model, 2003 was the reference year because the final Super Bowl in this sample occurred in 2003 (i.e., the Super Bowl culminating the 2002 season).

### ***Holidays***

Holidays are also known to witness an increase in domestic violence. Three major holidays occur during the NFL season: Thanksgiving, Christmas, and New Year's Day. In addition, for the first and third models, dummy variables were created for Valentine's Day, Memorial Day, Fourth of July, Labor Day, Halloween, and New Year's Eve. Accordingly, a dummy code was created for each holiday.

### ***NFL Game***

Using the same method as Phillips (1983), a dummy code was created for days before an NFL game, game days, the day after, two days after, three days after, four days after, and five days after.

### *Home*

NFL games that do not sell out their home stadiums are often blacked out from television viewing. This might lead to a decrease in city residents closely following the game. Accordingly, a dummy code was created for home games.

### *Division*

Each team plays each team in its division twice each season. These games have an especially prominent effect on the playoff race and are often against bitter rivals. Quality of opponent has shown to play a role in fan satisfaction (Madrigal, 1995). Accordingly, a dummy code was created for division games versus nondivision games.

### *Playoff*

Several of the cities that complied with the data request featured playoff teams, including three Super Bowl contenders. Accordingly, it was speculated that these games might create an especially great level of arousal among viewers. Likewise, much of the media speculation on the relationship between domestic violence and professional football centers on the Super Bowl. Out of 26,192 days worth of data, 4 days were Super Bowl days for a *specific* team in the sample. In total, there were 48 playoff days among the sample. Accordingly, all playoff days were coded as 1, and nonplayoff days were coded as 0.

### *Super Bowl*

Because of the large degree of speculation surrounding the Super Bowl, the media hype it generates, and the past study examining Super Bowl and domestic violence, a generic effect of the Super Bowl on domestic violence incidents separate from interest in a specific team was assessed. Accordingly, every day in the dataset ( $N=70$ ) that fell on a Super Bowl was dummy coded as 1. All other days were coded as a 0.

### *Win*

Both wins and losses could be theorized to elicit high arousal among viewers. Accordingly, a dummy code was created that would capture this contrast. Wins were coded as 1, and losses were coded as 0. The reverse would have had the same effect, except for reversing the coefficient (slope) computed using Type III sums of squares.

### *Weeks Remaining in Season*

It was of interest to capture game-relevant variables that could increase arousal among fans. Especially for playoff contenders, games take on an increasing importance as the season winds down. This was a ratio-level variable coded for the exact number of weeks remaining in the season. Playoff games were coded as 0.



### ***Games Back***

The number of games behind the division leader was calculated for each game. The formula was  $[(\text{leader wins} - \text{team wins}) + (\text{team losses} - \text{leader losses})] / 2$ . As teams were closer to the division lead, or in the lead, the games should have taken on an increasing importance.

### ***Games Back × Weeks Remaining***

This interaction was computed to capture any effects that being close to the division leader is especially important toward the end of the season.

### ***Published Spread***

Because much work on effects of mediated violence suggests that arousal is a driving factor, it was of critical importance to be able to quantify what viewers would expect from the games. Reports of fans show that fans do enter games with certain expectations, and game enjoyment varies as the games depart from preexisting expectations (Madrigal, 1995). In order to have an objective standard that has some scientific merit to what was expected, the authors turned to published game spreads. These spreads are to some degree based on financial interests and should have some homeostatic pressure. Furthermore, the spreads are influenced by betting trends nationwide, so they should in some way reflect the collective consciousness. Accordingly, the published game spread was used as our operationalization of expectations. As was the case with actual spread, it was thought to be more likely that published spreads would have a quadratic effect on viewer arousal rather than a straight linear effect. That is, although potentially frustrating, games that are expected to be blowouts on either end should not be especially engaging or arousing. For mood management purposes, viewers may not engage if their team is expected to win big or be blown out. Accordingly, predicted spread was entered as both a linear and a quadratic predictor.

### ***Actual Spread***

Research suggests that close games are more intensely enjoyed (Gan, et al., 1997). This was a simple computation of the difference between the two teams' scores (team score - opponent score). Closer games were thought to increase viewer arousal. Trend analysis in regression suggests that a predictor can have both linear and higher-order (e.g., quadratic and cubic) effects. Because viewer arousal might increase as games get closer and decrease as teams are blown out, actual spread was entered into the model as both a linear and quadratic (i.e., curvilinear) predictor.

## **Criterion Variables**

### ***Individual Days***

The raw number of domestic violence incidents was standardized by city using  $z$ -scores. This put each market on the same scale and prevented the top-ten markets from swamping the smaller cities. For each market, each day had a  $z$ -score computed for the

day before, the day itself, and each of the following five days. The game-day  $z$ -score and the following five days were calculated to determine any lingering effects of NFL football, akin to what has been shown by Phillips (1983). The  $z$ -score for the day before was calculated as a control variable as a check on external validity. That is, the presence of a football game should not increase the previous day's reports. Any variable that predicted domestic violence for the *preceding* day is more likely to be spurious.

### Summary Values

For each city, incidents were summed over three different periods: game day plus the next day, game day plus the next two days, and game day plus the next three days. These variables are used to test any carry-over effects.

### Statistical Analyses

All analyses were conducted using hierarchical regressions (Type I sums of squares). This method allows one to control for all seasonal variables before testing the variables of interest. Data were analyzed using the general linear model (GLM) procedure of SPSS 12.0 for Windows.

## RESULTS

The first regression sought to examine the effect of a game itself after controlling for month, weekday, year, and holiday status. This test was run before the individual game variables were considered. Coefficients (i.e., betas) are not reported here because they are calculated using unique (i.e., Type III) sums of squares. Accordingly, the betas would be especially high for football variables because the games are played on Sundays, when incidents are especially frequent. Beta values would ignore the independent effect of the day of the week. Accordingly,  $F$  tests are reported for the inclusion of the factor to the model containing *every variable that came before it*.

There was a modest but significant effect of having an NFL game on that day's domestic violence dispatches,  $F(1,25351)=4.60$ ,  $p=.032$ ,  $\Delta R^2=.00018$ . The results suggest that the presence of an NFL game does slightly increase the number of domestic violence reports. Unlike the Phillips (1983) data, there was no increase on the third day,  $F(1,25351)=.60$ ,  $p=.438$ . As can be seen in Table 22.1, no succeeding day approaches significance. Applying this relationship to Chicago (our largest city) the modest relationship would lead to approximately 3.5 additional domestic violence dispatches in a city-proper population of almost 3 million. For the victims, this is a real effect, but the one-in-a-million impact is negligible from an epidemiological perspective.

The second analysis for this study concentrated on the data for the actual 1,155 NFL games collected. In addition to the control variables used in the first hierarchical regression, this analysis included all of the game-related variables discussed above. It is important to note that this analysis was a strictly hierarchical regression, and a step-wise analysis was not conducted. If a rank ordering of effects had been the intent, several of the significance levels reported below would have had lower  $p$  values.

Separate regressions were run using the same model for the week surrounding each game (i.e., individual days and each of the summary values). The results are reported in Table 22.2. For the actual game day itself, two predictor variables reached significance. First, even after controlling for seasonal variation, there were still more incidents of domestic violence expected early in the season than late in the season,  $F(1,1071)=11.47, p=.001$ . This result may be an artifact of the analysis and reflect additional seasonal variation

TABLE 22.1 Hierarchical Effects of Football Games on Standardized Domestic Violence Rates

<i>Predictor</i>	<i>Mean Square</i>	<i>Df</i>	<i>F</i>	<i>B</i>
Intercept	.02	1	.03	-.45
Saturday	2002.69	1	2990.08***	1.07
Sunday	3357.64	1	5013.07***	1.14
Monday	27.92	1	41.69***	.12
Tuesday	1.92	1	2.86+	.04
Thursday	16.17	1	24.14***	.01
Friday	97.95	1	146.25***	.22
January	116.01	1	173.21***	-.25
February	116.70	1	174.24***	-.16
April	.32	1	.48	.10
May	144.43	1	215.64***	.30
June	144.36	1	215.53***	.30
July	249.08	1	371.88***	.30
August	168.15	1	251.06***	.22
September	91.08	1	135.98***	.03
October	3.18	1	4.75*	-.13
November	13.59	1	20.29***	-.27
December	52.41	1	78.25***	.31
1996	133.35	1	199.10***	.27
1997	246.47	1	367.99***	.29
1998	340.18	1	507.90***	.24
1999	50.72	1	75.73***	.00
2000	66.64	1	99.49***	-.21
2001	4.80	1	7.17**	-.07
New Year	474.57	1	708.54***	2.74
Valentine's	.00	1	.01	.01

Memorial Day	34.90	1	52.11***	.75
July 4th	68.87	1	102.82***	1.01
Labor Day	113.19	1	169.00***	1.30
Halloween	1.82	1	2.71+	.16
Thanksgiving	42.32	1	63.19***	.80
Christmas	110.29	1	164.67***	1.37
New Year Eve	11.82	1	17.65***	.43
Game - 1	.24	1	.36	.01
Game Day	3.08	1	4.60*	.08
Game + 1	1.51	1	2.25	.06
Game + 2	1.79	1	2.67	.05
Game + 3	.40	1	.60	-.01
Game + 4	.42	1	.62	.03
Game + 5	.07	1	.10	.01
Error	.67	25351		

Note. Results shown in the order entered into hierarchical regression (Type I Sums of Squares). Coefficients shown are computed using Type III (unique) sums of squares and are not indicative of the model tested. Model  $R^2=.33$ ; Adjusted  $R^2=.33$ .  
 \* $p<.05$ . \*\* $p<.01$ . \*\*\* $p<.001$ . + $p<.10$ .

TABLE 22.2 Hierarchical Effects ( $F$  values) of Seasonal and Football Game-Related Variables on Standardized Domestic Violence Rates

Predictor	Game Day	T+1	T+2	T+3	T0+1	T0+123
Intercept	397.06***	257.12***	368.13***	692.00***	17.30***	214.90***
Saturday	1.49	10.20**	.55	.01	1.24	.17
Sunday	86.97***	1.18	.19	5.49*	32.45***	7.81**
Monday	.00	1.99	11.70**	23.07***	.62	15.08***
Tuesday	3.34 <sup>+</sup>	1.12	6.35*	2.60	3.89*	9.51**
Thursday	.05	10.14**	.06	3.68 <sup>+</sup>	4.01*	.29
January	.91	.00	2.41	.16	.55	2.07
August	10.24***	39.44***	1.97	4.37**	35.56***	27.46***
September	34.50***	38.04***	18.91***	8.79**	58.68***	64.36***
October	19.72***	2.76	1.14	2.10	15.60*	13.11**
November	2.03	.17	9.66**	.60	.50	1.51
1996	2.37	.36	.54	6.78**	1.91	4.19*

1997	21.11***	18.56***	6.84**	28.86***	31.50***	43.60***
1998	29.68***	2.98	4.97*	6.64**	21.90***	22.37***
1999	.94	4.71*	5.18*	.13	.46	3.40 <sup>+</sup>
2000	.98	1.26	13.10***	4.18*	.01	4.81*
2001	.14	2.09	3.81	.91	.31	.37
2002	.52	1.37	.51	.05	1.49	.27
Labor Day	15.58***	.20	.26	.11	5.11*	.14
Halloween	3.68 <sup>+</sup>	.00	3.19 <sup>+</sup>	1.68	1.27	.67
Thanksgiving	6.22*	2.92 <sup>+</sup>	3.59 <sup>+</sup>	.65	7.21**	8.00**
Christmas	2.01	2.95 <sup>+</sup>	3.01 <sup>+</sup>	.31	.00	.65
New Year Eve	.71	33.42***	.64	1.07	15.63***	7.18**
Home Game	1.45	.10	2.53	1.70	1.08	2.85 <sup>+</sup>
Division	.88	.27	1.00	.08	.34	1.11
Playoff	1.76	2.58	.02	.47	.03	.12
Win	1.16	1.15	.02	.86	1.76	.23
Weeks Left	11.47***	6.78**	2.87 <sup>+</sup>	.37	14.36***	2.21
Games Back	.55	2.06	1.81	.24	.05	.86
WkLft×GmBk	.02	6.25 <sup>+</sup>	.72	2.56	2.55	1.54
Pr. Spread	6.88**	3.32	.20	1.20	6.93**	3.36 <sup>+</sup>
Pr. Spread <sup>2</sup>	.65	1.51	.03	5.35	1.76	2.39
Ac. Spread	.01	.16	.70	1.14	.09	.00
Ac. Spread <sup>2</sup>	1.01	.56	.01	.91	.07	.00
Adj.Model R <sup>2</sup>	.18***	.13***	.06***	.07***	.18***	.17***

Note. Results shown in the order entered into hierarchical regression (Type III sums of squares).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . + $p < .10$ .

that month of the year did not capture. Second, the standardized domestic violence dispatches were inversely proportional to the spread. That is, the more the team was expected to lose, the greater the number of domestic violence dispatches on that game day,  $F(1,1071) = 6.88$ ,  $p = .009$ . Because many NFL games are not completed until late afternoon, a domestic violence incident might not be reported until after midnight, falling on the next day's reports in police record keeping. Looking at the regression analyzing the sum of the same day *and* the next day, the linear effect of the published spread is again significant,  $F(1,1070) = 6.92$ ,  $p = .009$ .

In the design of this study, it was anticipated that predicted spread might exhibit a quadratic effect on domestic violence incidents. That is, games that were expected to be close would lead to greater anxiety and subsequent activation of the sympathetic nervous

system (i.e., arousal). As can be seen in Table 22.2, there was no such effect for the game day itself. However, the published spread did correlate with exactly the expected pattern for the third day after the game,  $F(1, 1063)=5.35, p=.021$ . Had it been any other day, the value would have been considered spurious and a likely result of Type I error. Instead, it fell on the third day, the same day for which Phillips (1983) found an increase in homicides after heavyweight prizefights, and the same day single-car automobile fatalities have been shown to increase after heavily publicized suicide stories. Furthermore, in his study of prizefights, Phillips (1983) also examined the effect of Super Bowls on homicides. No  $F$  value exceeded 1, except for the third day, which was above 2 and marginally significant. If there is a role between football and domestic violence, it appears that its effect may be immediate (i.e., same day) and delayed (i.e., three days later). Furthermore, these data suggest a pattern that makes sense: The quadratic trend suggests that when local, personally relevant games are expected to be close, there is a systematic increase in the number of domestic violence dispatches. When the game is supposed to be a blowout, anxiety should be lesser, and, not surprisingly, no third-day effect is seen.

There is also a small, interesting linear relationship of the term combining games remaining in the season and how close the team is to the division lead,  $F(1,1063)= 2.56, p=.110$ , such that domestic violence is less when either many weeks remain in the season *or* the team is out of contention. Conversely, when games matter the most—when few weeks remain *and* the team is in contention—significantly more domestic violence is reported on the third day. See Table 22.2.

The significant third-day effect for predicted spread squared as well as game importance might be dismissed as Type I error. Yet, these patterns are consistent: When games matter and when they are expected to be close, domestic violence systematically increases. When games matter less, no relationship with domestic violence is seen.

Finally, it remained to test whether the presence of a Super Bowl game on a given day would have an effect on domestic violence independent of city. Again, a hierarchical regression was run controlling for weekday, month, and major holidays before testing for the effect of the Super Bowl. Offering support to the many media reports linking domestic violence and the Super Bowl regardless of whether one's team is playing, these data suggest a significant positive relationship between a Super Bowl and domestic violence even after controls,  $F(1,25416)=7.34, p=.007$ . As was expected, each holiday event was a significant positive predictor of domestic violence. In total, this model successfully predicted 33 percent of that variance in domestic violence data (adjusted  $R^2=.329$ ). Although the presence of a Super Bowl was a significant predictor of domestic violence, the overall effect was small. In sum, the data collected here report 1,366,518 domestic violence dispatches from the 15 cities. The above model suggests that 272 of those total incidents throughout the year, or .0199 %, were attributable directly to a Super Bowl falling on a given day. However, those 272 incidents reported on a Super Bowl day represent 6.5% of the incidents ( $N=4,179$ ) for that day. For comparison, approximately 1,238 incidents were attributable to Christmas in addition to what would have been expected for that day. Looked at across the year, the Super Bowl effect adds a very small number of incidents of domestic violence. For the day itself, there is a noticeable increase. The Super Bowl also occurs later in the day, and, accordingly, its effect is also seen on the combined measure looking at incidents over two days,  $F(1,25396)= 4.77$ ,

$p=.029$ . The other holidays also exhibit this pattern. Interestingly, there is no third-day effect, as was seen with the local, higher personal relevance games,  $F(1,25371)=.18$ ,  $p=.670$ .

To examine whether this was just a unique effect of Sundays in January (i.e., an interaction) due to the large numbers of degrees of freedom, the model included a control variable dummy code indicating every Sunday in January. That test was not significant,  $F(1,25416)=.00$ ,  $p=.99$ . Thus, it appears there is indeed a unique contribution made by the presence of a Super Bowl game.

## DISCUSSION

This study examined the linkage between professional football and domestic violence, relying on 26,102 days of domestic violence reports collected in 15 cities and 1,155 professional football games. By itself, the presence of a football game only marginally affected domestic violence rates. Given the multitude of factors that influence domestic violence, this is not entirely surprising. Any relationship between professional football and domestic violence is likely to be quite complex and, even with police data, not easy to precisely calculate.

Three analyses reported in this study point to a systematic relationship between domestic violence and football. The first analysis suggests a tentative link between the occurrence of a professional football game and an increase in domestic violence. After controlling for daily, monthly, yearly, and holiday variation, there was a marginal link between a football game for the local team and an increase in domestic violence incidents in that city.

The second analysis suggests a complicated relationship between games likely to increase viewer anxiety and involvement (i.e., games expected to be close and/or meaningful) and domestic violence dispatches peaking on the third day. Although this third-day phenomenon has been documented to affect violence in response to professional boxing and single-car fatalities after heavily publicized suicide stories, the psychological mechanisms remain largely beyond explanation. At least one post hoc explanation merits consideration. Unlike baseball, basketball, and hockey, football fans are forced to live with the results of a bad game for a week. The slate cannot be washed clean as quickly as it would be for those other major televised sports. Combined with midweek frustration, maximal distance from weekends, simmering resentments (and, for some, lost bets), this frustration may need several days after the game to finally boil over. Along those lines, those who bet on football need a week to recoup weekend losses. By midweek, those losses may rankle, particularly if one's spouse is aware of the wagering and annoyed with the activity itself or its outcome.

Little research has been conducted into any possible time lags in domestic violence occurrence and reporting. We do know that when police are called, officers respond more than half of the time within 10 minutes (Bachman & Coker, 1995). Data obtained from battered women indicate that victims are battered far more often than they call police and that male drunkenness plays a significant role in the decision to call police (Hutchison, 2003). Furthermore, substance use was not reported in a majority of battering incidents but may have played a role in which incidents led to a call for police (Hutchison, 2003).

In a study of women in a domestic violence shelter, approximately 41 percent of the women had not called police (Coulter, Kuehnle, Byers, & Alfonso, 1999). Female victims of violence (both domestic and otherwise) are more likely to call police following first-time assaults and assaults that lead to injury (Jasinski, 2003). When police were called in response to physical violence, arrests were reported being made less than one fourth of the time (Coulter, et al., 1999). Other reasons given for failure to call police include lack of physical evidence, fear of or past negative experience with police, and fear of repercussion (Wolf, Ly, Hobart, & Kernic, 2003). Thus, we know that these domestic violence calls here are but a fraction of the incidents that occurred. Along with a host of other contributing factors, NFL football may trigger more domestic violence than we report. Unfortunately, we do not know and cannot estimate the proportion of the dispatches included in our dataset that were a day or more after the incidents actually occurred.

The third analysis provides a link between the Super Bowl itself and domestic violence, resulting in an average of 244 additional cases of domestic violence across the 15 cities studied. Since all holidays tested in the study except Valentine's Day and Halloween were significant predictors of domestic violence, the Super Bowl effect reported here may be less of a football effect than that normally encountered with holidays. That is, the Super Bowl is a major event in many American households with all of the fanfare, planning, and preparation of any other holiday. As with Thanksgiving, Memorial Day, and Labor Day, many households prepare special meals around the Super Bowl. As with these other holidays, too, alcohol is often consumed. Viewed from this perspective, it appears that the Super Bowl has all of the elements to spark holiday-related domestic violence: increased expectations, close domestic interaction, and alcohol consumption. And unlike the other three major sports in America, this one game is for all the marbles, raising the stakes for those who care about the outcome. Although it goes against the hopes associated with any holiday, it appears that when one throws together a mix of people, expectations, anxiety, and alcohol—and in many locales, in close quarters under wintry conditions—a same and next day spike in violence is the result. Having said that, we also can account for the comparatively mild spike associated with the Super Bowl. Although the game is the last of the season and, among fans, is of tremendous import for that reason, only a small proportion of those who watch really care for the two teams in the game. Unlike most games that are televised regionally, where fans for each team are likely to make up a sizeable segment of the audience, this game is watched by fans across the country who, earlier in the season, would be rooting for their home team *against* these teams. Super Bowl viewers are likely to take sides, but the passion they bring to the team they root for is likely to be far less intense than what they have for their favorite team. Indeed, they may end up rooting for the team they dislike the least. This sort of identification is not likely to stimulate significant arousal and, if their team loses, much pent-up frustration.

Although our data suggest a pattern between professional football and domestic violence, that is, the pattern holds across years and cities, the data also suggest that the relationship is complex and nonlinear. Those seeking a stimulus-response type link between football and domestic violence will not find unequivocal support in these data. These data suggest that, as games become especially important and are likely to elicit anxiety, domestic violence increases, with notable immediate and delayed effects. This may be a football effect or, more broadly, an effect in accord with the linkage between



high-impact media violence portrayals and subsequent real-world violence following a three-day lag.

More broadly, our study contributes to the literature on televised sports and marital (as well as other nonsanctioned long-standing) relationships. On occasion, televised sports can trigger an ugly and violent confrontation between spouses, one that quickly and clearly threatens the relationship itself. Such confrontations represent the end point on a continuum of effects associated with televised sports. We do not know the proportion of these confrontations that result in divorce, much as we do not know the cumulative impact of simmering resentments associated with unequal commitment to televised sports. Domestic violence as well as simmering resentments are far from the norm. Fortunately for all involved, domestic violence triggered by televised football (or, for that matter, other sports) appears to be rare.

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